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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,848	11/19/2003	Manabu Takahashi	60188-705	3964
7590 08/24/2005 MCDERMOTT, WILL & EMERY 600 13th Street, N.W. Washington, DC 20005-3096			EXAMINER STEVENSON, ANDRE C	
			ART UNIT 2812	PAPER NUMBER
DATE MAILED: 08/24/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,848

Applicant(s)

TAKAHASHI ET AL.

Examiner

Andre' C. Stevenson

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12 is/are rejected.
- 7) ☒ Claim(s) 13-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Detailed Action

Specification

The disclosure is objected to because of the following informalities: The disclosure fails to show support for the amendment filed on June 09, 2005. While the drawings show the amended attributes, there is lack of support for the amended matter within the specification. For example:

1) Claim #12 describes a second edge of a second PWM signal by a second delay value corresponding to the second dead time, the second edge of the second PWM signal value PWM signal having the same direction of change as that of the first edge of the first PWM signal, and for outputting a modified second PWM signal having the delayed second edge instead of the second edge to control the inverter circuit. It would appear that there is support in the drawings for the claimed language; however, the Examiner cannot find, in the disclosure, where there is a designation of what is considered to be the first, second or third edge and their position of change as stated in claim #12 language. The Examiner notes that there is no mention in the disclosure of PWM having the same direction of change as that of the first edge of the first PWM signal, as stated in Claim #12.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim #12 is rejected under 35 U.S.C. 102(e) as being anticipated by Ying et al. (U.S.

Pat. No.6,535,402 B1, Patented 03/18/03, Filed 07/12/02).

Ying substantially shows the claimed invention, as shown in figures 1-10 and corresponding text, in a device comprising, **pertaining to claim #12**, a semiconductor device for controlling an inverter circuit comprising: a complementary PWM signal generation unit for generating a first PWM signal (**column 4, lines 35-46**) and a second PWM signal corresponding to an inverted signal of the first PWM signal (**column 3, lines 59-67**); a dead time calculating unit for calculating a first dead time and a second dead time (**column 3, lines 59-67; column 4, lines 1-6**), the first dead time determined in response to a comparison between a count value of a timer and a first value stored in a register and the second dead time determined in response to a comparison between a count value of a timer and a second value stored in a register (**column 3, lines 59-67; column 4, lines 1-6 and lines 35-46**), a first dead time addition unit for delaying a first edge of the first PWM signal by a first delay value corresponding to the first dead time and for outputting a modified first PWM signal having the first delayed edge instead of the first edge to control the inverter circuit (**column 6, lines 29-50**), and a second dead time addition unit for delaying a second edge of the second PWM signal by a second delay value corresponding to the second dead time, the second edge of the second PWM signal having the same direction of change as that of the first edge of the first PWM signal, and for outputting a modified second PWM signal having the delayed second edge instead of the second edge to control the inverter

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circuit (**column 4, lines 42-46; column 3**). The Examiner notes that Ying does not mention explicitly a first value stored in a register. However, the Examiner considers the PWM reference value, shown by Ying, to be the equivalent. Also, the Examiner notes that Ying does not mention explicitly that the second PWM signal has the same direction as the first edge of the first PWM signal. However, it can be seen from the drawings

Allowable Subject Matter

Claims #13-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, pending further updated search.

Claim #13

- ✓ Wherein the first value is stored in the first register when calculating the first dead time and the second value is stored in the first register when calculating the second dead time.

Claim #15

- ✓ A second register for receiving the second value from a second buffer register and storing the second value.

Claim #17

- ✓ The second dead time timer starting counting in response to receiving the second edge of the second PMW signal and stopping counting in response to a

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coincidence between the count value of the second dead time timer and the second value stored in the second register.

Claim #19

- ✓ A comparator for comparing the value of the cycle timer with either the first value stored in the first register or the second value stored in the second register and calculating the first dead time and the second dead time in response to a result of the comparison of the comparator.

Claim #20

- ✓ A second comparator for comparing the count value of the cycle timer with the second value stored in the second register and calculating the second dead time in response to a result of the comparison of the second comparator.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; Wilson (U.S. Pat. No. 5,764,024), Thomas (U.S. Pat. No. 6,841,983), Kernahan et al. (U.S. Pat. No. 6,825,644), Batarseh et al. (U.S. Pat. No. 6,836,414), Kernahan et al. (U.S. Pat. No. 6,801,028), Kernahan et al. (U.S. Pat. No. 6,819,011).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt, can be reached on (571) 272 1873. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

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(703) 872-9306

Andre' Stevenson

08/22/05


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER